

Neural Nets Based Approach for 2-Cells Power Converter Control

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Abstract : Neural networks-based approach for 2-cells serial converter has been developed and implemented. The approach is based on a behavioural description of the different operating modes of the converter. Each operating mode represents a well-defined configuration, and for which is matched an operating zone satisfying given invariance conditions, depending on the capacitors' voltages and the load current of the converter. For each mode, a control vector whose components are the control signals to be applied to the converter switches has been associated. Therefore, the problem is reduced to a classification task of the different operating modes of the converter. The artificial neural nets-based approach, which constitutes a powerful tool for this kind of task, has been adopted and implemented. The application to a 2-cells chopper has allowed ensuring efficient and robust control of the load current and a high capacitors voltages balancing.

Keywords : neural nets, control, multicellular converters, 2-cells chopper

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